

ABSTRACT

**FLUORESCENT PROTEINS, NUCLEIC ACIDS ENCODING THEM AND METHODS FOR MAKING AND USING THEM**

The invention is directed to polypeptides having a fluorescent activity, e.g., an auto-fluorescent activity, polynucleotides encoding the polypeptides, and methods for

5   making and using these polynucleotides and polypeptides. The polypeptides of the invention can be used as noninvasive fluorescent markers in living cells and intact organs and animals. The polypeptides of the invention can be used as, e.g., *in vivo* markers/ tracers of gene expression and protein localization, activity indicators, fluorescent resonance energy transfer (FRET) markers, cell lineage markers/ tracers, reporters of gene

10   expression and as markers/ tracers in protein-protein interactions.